: What are key skills of data-based decision makers?

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Decision making habits are often learned by trial and error. Decision making skills should be learned through more deliberate, systematic effort. Organizational culture also influences decision making behaviors. An organization culture can promote use of data to make decisions or be neutral on this topic. More data, including "big data", and more and easier to use analytical tools provide an opportunity for improving operational decision making, but many managers must learn new behaviors and skills to actually use data and analyses effectively. Generally, managers must expand their skill sets to become effective data-based decision makers. Effective data-based decision making requires a specialized skill set in addition to other decision making skills.

Organizations that embrace measurement have a data-centric culture. The culture encourages and rewards managers for making decisions based on meaningful data, rather than solely based on intuition, cf., Kanter (2013). Providing data analyses and encouraging use of analyses does not however guarantee better decisions. The first skill that managers must enhance and refine is **understanding the possibilities of data analysis**. Then managers must strive to **understand the meaning of frequently used analyses**. Managers must be rewarded for incorporating results of data and analysis into their thinking about a situation.

Shea, Santos and Byrnes (2012) differentiate between data-driven and data-supported decisions. They note both processes use quantitative and qualitative data to inform and make decisions. Supposedly data-supported decisions "use the same data but they also take into account people, issues, ethics, and broader system effects." They caution that an excessive "data driven" emphasis can contribute to ethical blind spots and poor decisions. Data-based decision making can and should incorporate ethics and ethical decision making.

Using data and analyses is sometimes challenging. Rob Enderle (2013; 2014), a technology analyst, provides examples of what he considered poor use of data and analyses at IBM, Microsoft and Siemens. For example, he reports Microsoft's internal market research organization was providing executives with "results that made decisions they had already made look smarter." Hindsight can suggest data distortion and misuse, but based on his personal experience he observed "a surprisingly small number of the companies that sell analytics tools actually rely on those tools for major decisions." Managers in companies need to use analytical tools and avoid biased decision making.

Blogger Kalie Moore (2014) at Business Intelligence software vendor datapine.com raises a similar issue. She writes "insights we provide are completely useless if, at the end of the day, these reports

are ignored by the actual decision makers." Moore felt business leaders were not using data in decision making for three reasons: 1) overreliance on past experience, 2) going with their gut and cooking the data, and 3) cognitive biases. These are serious concerns. There are ways to overcome biased decision behavior, but managers must become aware of their own biases and the problem resulting from specific biases. Managers must **develop reflective skills**, especially regarding biases in data use, to become effective data-based decision makers. Reflective skills means thinking about or reflecting on what you do.

Data analyses can be used to bolster and provide biased confirmation of previously made decisions. Also, analyses can be requested that support biased rationalizing of decisions. Skilled data-based decision makers must learn to **reserve judgment and postpone a final choice until the available facts are presented and evaluated**. A decision should then be made that incorporates and reconciles the facts.

The phrase data-driven decision making is an ambiguous and controversial concept, but according to Mandinach, Gummer and Muller (2011), "Data-driven decision making has become a national education priority". They note a "lack of clarity in terminology around data-driven decision making whereby multiple definitions create the potential for confusion." Use of the term data-driven decision making [1] emphasizes using "hard"[2] data, and only data, to "backup" or justify a decision. We prefer the more balanced term data-based decision making. We refer to data-based decision makers as people skilled at data-based decision making.

So what are the specialized data analytics decision skills managers and decision makers need? The primary skills seem to broadly encompass: 1) collecting and identifying relevant data, 2) using software to perform statistical analysis including charting of data, 3) interpreting data and analyses in the context of an actual decision situation, and 4) using analyses of data, including sensitivity analyses, to inform decisions. Let's review these skills briefly.

1. Collecting and identifying relevant data. Organizations collect large amounts of data and external data can also be purchased. Often new data can also be captured. Managers need to understand data resources and data capture and how to work with stored data, to use metadata, to identify what data is available and what new data should be captured.

2. Using software to perform statistical analysis including charting of data. Often desktop tools like Excel and Tableau are adequate. Learning a statistical analysis package helps decision makers interpret analytical results and understand limitations of statistical analysis.

3. Interpreting data and analyses in the context of an actual decision situation. Decision makers need to match data and analyses to questions of interest. Many decisions can be framed either in terms of gains or losses. How a decision is framed can also impact choices of a decision maker Ask: What do I need to know about this situation? Is there data that will help me understand my choices in the situation? What does the data mean? Do I have a pre-conceived solution or biases?

4. Using analyses of data, including sensitivity analyses, to inform decisions. Data can inform decisions, but data does not always provide conclusive evidence. In some situations data analysis shows a strong correlation, but the causal evidence is much more circumstantial. Rather than ignoring data, managers should show caution when they use available data. Correlation is not causation, but in many cases correlation is the strongest conclusion about a relationship.

Many observers agree quantitative skills are important to data-based decision making. For example, Tom Davenport, MIT Center for Digital Business, argues "quantitative analytical thinking is key to successful individual and organizational decision making. Yet many managers lack the necessary orientation to quantitative matters." **Quantitative analytical thinking** is an important skill when data is used to support decision making.

Until recently, data analysis skills were primarily taught to statisticians, market researchers, actuaries and other specialists more than to people planning careers as managers. Times have changed and teaching applied data analysis skills is increasingly popular. Top International Business Schools are addressing this managerial skills gap. There is broad recognition that managers and decision makers need to be skilled data users and data interpreters. Managers need to be skilled at data-based decision making.

Using data and analyzing data is every manager's job. While organizations continue to seek highly skilled data scientists with exceptional quantitative analysis skills, organizations undertaking digital transformation require employees at every level with data analysis skills. If that goal is to be realized, then current and future decision makers must develop and enhance skills needed to use data effectively. Rationalizing before a decision is made or afterward are equally inappropriate. A skilled, data-based decision maker follows a process that begins with asking the right questions, and then answering them using facts, relevant data and analyses prior to making a decision.

Footnotes

[1] Techopedia.com notes "Data-driven decision making (DDDM) involves making decisions that are

backed up by hard data rather than making decisions that are intuitive or based on observation alone." See https://www.techopedia.com/definition/32877/data-driven-decision-making-dddm .

[2] "Hard Data is defined as data in the form of numbers or graphs, as opposed to qualitative information." McGraw-Hill Dictionary of Scientific & Technical Terms, 6E. (2003). Retrieved May 27 2015 from http://encyclopedia2.thefreedictionary.com/hard+data.

References

Enderle, R. (2013). "Data analytics will fail if executives ignore the numbers," CIO Online, January 9 at URL https://www.cio.com.au/article/445605/data_analytics_will_fail_executives_ignore_numbers/?fp=4&fpid=22

Enderle, R. (2014). "Are We Too Stupid to Let Watson Make Us Smarter?" CIO Online, February 14 at URL https://www.cio.com/article/2378707/big-data/are-we-too-stupid-to-let-watson-make-us-smarter-.html

Kanter, B. (2013). "Why Data Informed VS Data Driven?" Beth's Blog, February 21, last accessed March 18, 2018 at URL http://www.bethkanter.org/data-informed/

Mandinach, E. B., E. S. Gummer, and R. D. Muller (2011), "The Complexities of Integrating Data-Driven Decision Making into Professional Preparation in Schools of Education: It’s Harder Than You Think," at http://educationnorthwest.org/sites/default/files/gummer-mandinach-report-summary.pdf

Moore, K., "Data Driven Decision Making? Why We Ignore Data and Go With Our Guts," August 6, 2014 at URL http://www.datapine.com/blog/data-driven-decision-making/ .

Shea, J., J. Jones Santos, and P. Byrnes, "Community Needs Assessment and Data-Supported Decision Making: Keys to Building Responsive and Effective Health Centers," National Association of Community Health Centers, November 2012 at URL

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http://www.nachc.com/client/documents/2012%20Data%20Supported%20Decision%20Making.pdf

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